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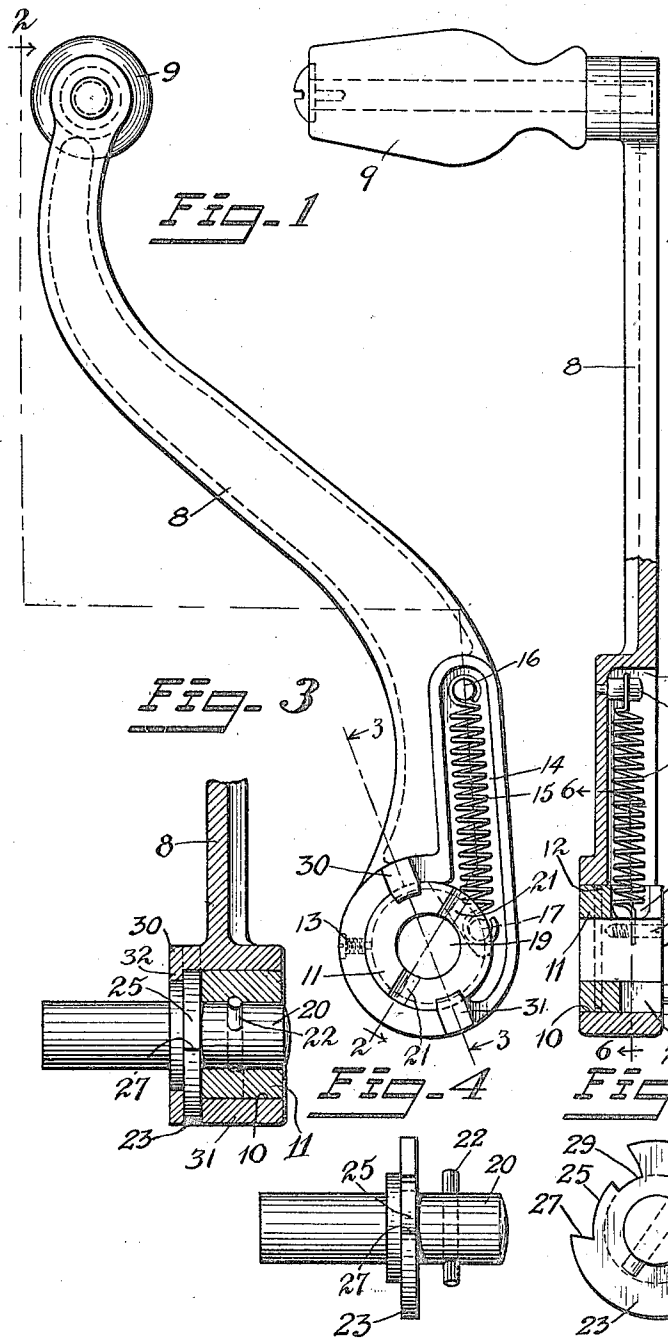
HANDLE FOR CALCULATORS.

APPLICATION FILED NOV. 10, 1915.

1,231,981. Patented July 3, 1917.



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HANDLE FOR CALCULATORS.

1,231,981. Specification of Letters Patent. Patented July 3, 1917.

Application filed November 10, 1915. Serial No. 60,649.

To all whom it may concern:

Be it known that I, ERNEST H. ALBERTSON, a citizen of the United States, and resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Handles for Calculators, of which the following is a specification.

This invention has reference to a removable or detachable handle especially designed for use with calculators or any machine where the spindle is operated by swinging it a comparatively short distance in one direction, and thereupon the handle can be released as the spindle is returned to its former position by other means, such as a spring connected with the spindle that is tensioned on the swing of the spindle by the handle.

The object of the present invention is to provide a device of this character, wherein the handle upon being swung backward, or in the opposite direction from its active movement, will be brought to a position wherein it can be withdrawn from the spindle, and without the adjustment or movement of any of the parts connected therewith. A further object is to provide in such a device a spring arrangement whereby the handle will be normally retained advanced from its said position of removal.

In the accompanying drawing illustrating one embodiment of my invention, Figure 1 is a front elevation of the handle removed from the spindle. Fig. 2 is a vertical section through the handle, on the line 2—2 of Fig. 1. Fig. 3 is a partial section through the handle and spindle on line 3—3 of Fig. 1. Fig. 4 shows the spindle in side elevation, and Fig. 5 the same in end elevation.

Fig. 6 is a transverse section of the handle sleeve on the line 6—6 of Fig. 2, and

Fig. 7 is a section on the line 3—3 of Fig. 1.

As shown in the drawing the handle 8 is provided with a grip 9 at its free end, while its other end contains a bore 10. In this bore swings a sleeve 11, shown separately in Fig. 6. The sleeve is preferably held in the handle to prevent endwise movement, but permitted to rotate therein, being shown as having a peripheral slot 12, into which projects a screw 13 from the handle member. The sleeve is connected with the handle by a suitable spring that will be tensioned when the sleeve is turned in the handle. As shown I provide a slot 14 in the handle, in which lies a coil spring 15 engaging a pin 16 on the handle by one end, while its other end engages a pin 17 located in a peripheral slot 18 in the sleeve 11. Hence, turning of the sleeve in the handle to elongate the spring will place it under tension tending to return the sleeve when free.

The bore 19 of the sleeve 11 is of a size to be slid on to the spindle 20, and engaging means are provided between the sleeve and spindle to prevent any rotation of the sleeve on the spindle. As shown the sleeve is provided with radial slots 21 arranged to engage a radial or diametral pin 22 fast on the spindle. The slots 21 extend inwardly some distance from the face of the sleeve.

Engaging means are further provided between the handle 8 and the spindle 20, or a member connected rigidly therewith. As shown I provide a disk 23 that is fast on the spindle 20 a short distance beyond the cross pin 22. Engaging means are arranged between this disk and the handle whereby upon sliding the handle sleeve 11 on the spindle with the pin 22 engaging the slots 21, and thereupon swinging the handle in the backward direction with the spindle held against movement, and the spindle holding the sleeve, the handle will turn on the sleeve and tension the spring. In such position the engaging means will permit further advance of the handle and sleeve on the spindle, and in the full advance of such movement the release of the handle will permit the spring to bring other engaging means between the disk and handle into contact, which means when the handle is moved forward cause the desired turning of the spindle by the handle; but the reverse movement of the handle will not force the spindle with it, because of the yielding connection between the sleeve and the handle. As shown the sleeve 23 has opposite reduced portions 24 and 25 that provide opposite shoulders 26 and 27. (see Fig. 5.). In these reduced portions I provide slots 28 and 29 at the portions opposite the said shoulder portions. On the handle 8 I provide studs 30 and 31 having inwardly extending lugs 32 and 33 respectively.

These studs and lugs are so arranged relative to the disk 23 that when the handle has been placed on the spindle with the sleeve engaging the pin 22 and swung backward to tension its spring, the lugs 32 and 33 will be brought to register with the slots 28 and 29 respectively, and then the handle and sleeve are further advanced on the spindle. This will bring the end face 34 of the sleeve against the face of the disk 23, and the lugs are offset from such face of the handle and sleeve, so that the bottom walls of the reduced portions 24 and 25 can pass between the lugs of the sleeve. The release of the handle will cause the tensioned spring to swing the handle on the sleeve (locked on the spindle by the pin 22) until the shoulders 26 and 27 of the disk engage the sides of the studs 30 and 31 respectively, and the spring will retain the handle normally in this position. In the operation of the machine, the pull of the handle for the active stroke is such that the studs 30 and 31 are forced against the shoulders 26 and 27, to rotate the spindle through the disk. When the handle is released, the springs that may be connected with the spindle will return the spindle, and consequently the handle to former position. But if the handle should be withdrawn rearward without such springs acting, or prior to the movement of the spindle by its springs, the studs 30 and 31 will simply leave the shoulders 26 and 27, without the handle having thereby any turning effect on the disk and spindle, but simply causing the spring 15 to be tensioned because the sleeve will be locked on the spindle, while the handle will turn on the sleeve. As soon as released the handle will be turned by the spring 15 to reëngage the studs with the disk shoulders.

When it is desired to remove the handle, it is only necessary to swing the handle rearward until the studs are brought to register with the slots 28 and 29 in the disk, whereupon the handle and sleeve can be withdrawn on the spindle until the studs are free from the disk. This will permit the release of the tension of the spring as the disk will not now interfere with the studs, and the pin 22 will now be relieved of tension in the slot 21, permitting the easy removal of the sleeve and handle from the spindle.

To replace the handle, the sleeve is slid on the spindle with the pin entering the slots 21 a short distance until the disk 23 is brought adjacent the studs, which will give a grip between the spindle pin and the sleeve. The handle is now swung backward until the studs on the handle register with the slots in the disk, which will further tension the handle spring 15. This will permit the further sliding of the handle and sleeve on the spindle, until the lugs on the studs pass beyond the disk, so that the disk can turn between the lugs and the handle. Upon release of the handle the tensioned handle spring 15 will move the handle forward until the studs engage the shoulders 26 and 27 on the disk, which is the normal position of the handle on the spindle and disk.

Having thus described my invention, what I claim is:

1. In a handle device, a handle having a bore at one end, a sleeve rotatable in the bore, the sleeve having a radial slot in one face, a spring on the handle connected at its ends to the handle and to the sleeve respectively whereby turning of the sleeve will tension the spring, a spindle provided with a radial pin and arranged to enter the sleeve bore with the pin engaging the sleeve slot, a disk on said spindle, said disk having its circumference reduced at opposite portions to form shoulders, the handle being provided with a pair of lugs on opposite sides of its bore that will engage said shoulders to cause the handle to turn the spindle, the spring serving to normally retain the studs against the shoulders.

2. In a handle device, a handle having a bore at one end, a sleeve rotatable in the bore, the sleeve having a radial slot in one face, a spring connected at its ends to the handle and to the sleeve respectively whereby turning of the sleeve will tension the spring, a spindle provided with a radial pin and arranged to enter the sleeve bore with the pin engaging the sleeve slot, a disk on said spindle, said disk having its circumference reduced at opposite portions to form shoulders, and also having slots in the reduced portions at opposite places, the handle being provided with a pair of studs having inwardly extending lugs on opposite sides of its bore that are offset from the collar to permit the lugs to enter said slotted portions of the disk and upon turning of the handle on the spindle the studs will engage the shoulders to turn the spindle, and the lugs will engage the disk to prevent removal except when registering with said slots, the spring serving to retain the studs normally against the shoulders.

3. In a handle device, a handle having a bore at one end, a sleeve rotatable in the bore, the sleeve having a radial slot in one face, the handle having a slot adjacent the bore, a helical spring in the handle slot connected at its ends to the handle and to the sleeve respectively whereby turning of the sleeve will tension the spring, a spindle provided with a radial pin and arranged to enter the sleeve bore with the pin engaging the sleeve slot, a disk on said spindle, said disk having its circumference reduced at opposite portions to form shoulders, the handle being provided with a pair of lugs on opposite sides of its bore that will engage

said shoulders to cause the handle to turn the spindle, the spring serving to retain the studs against the shoulders.

4. In a handle device, a handle having a bore at one end, a sleeve rotatable in the bore, the sleeve having a radial slot in one face, the handle having a slot adjacent the bore, a helical spring in the handle slot connected at its ends to the handle and to the sleeve respectively whereby turning of the sleeve will tension the spring, a spindle provided with a radial pin and arranged to enter the sleeve bore with the pin engaging the sleeve slot, a disk on said spindle, said disk having its circumference reduced at opposite portions to form shoulders, and also having slots in the reduced portions at opposite places, the handle being provided with a pair of studs having inwardly extending lugs on opposite sides of its bore that are offset from the collar to permit the lugs to enter said slotted portions of the disk and upon turning of the handle on the spindle the lugs will engage the disk beyond such reduced portions to prevent removal of the handle, and the studs will engage the shoulders to turn the spindle, the spring serving to retain the studs normally against the shoulders.

5. In a handle device, a handle having a bore at one end, a sleeve rotatable in the bore, a spring on the handle connected at its ends to the handle and to the sleeve respectively whereby turning of the sleeve in a certain direction will tension the spring, a spindle arranged to enter the sleeve bore, the sleeve and spindle having means that engage upon the sleeve being slid on the spindle to prevent any turning movement of the sleeve on the spindle, and engaging means on the handle and spindle arranged to connect upon turning of the sleeve and handle on the spindle in the direction opposite of said turning movement that tensions the spring, whereby to swing the spindle by the handle.

6. In a handle device, a handle having a bore at one end, a sleeve rotatable in the bore, a spring on the handle connected at its ends to the handle and to the sleeve respectively whereby turning of the sleeve in a certain direction will tension the spring, a spindle arranged to enter the sleeve bore, the sleeve and spindle having means that engage upon the sleeve being slid on the spindle to prevent any turning movement of the sleeve on the spindle, and engaging means on the handle and spindle arranged to connect upon turning of the sleeve and handle on the spindle in the direction opposite of said turning movement that tensions the spring, whereby to swing the spindle by the handle, the spring retaining the said handle and spindle engaging means normally in contact.

7. In a handle device, a handle having a bore at one end, a sleeve rotatable in the bore, a spring on the handle connected at its ends to the handle and to the sleeve respectively whereby turning of the sleeve in a certain direction will tension the spring, a spindle arranged to enter the sleeve bore, the sleeve and spindle having means that engage upon the sleeve being slid on the spindle to prevent any turning movement of the sleeve on the spindle, and engaging means on the handle and spindle arranged to connect upon turning of the sleeve and handle on the spindle, in the direction opposite of said turning movement that tensions the spring, whereby to swing the spindle by the handle, the handle and sleeve being removable from the spindle when swung to rearward position.

ERNEST H. ALBERTSON.